5. IMPACTS OF COMMERCIAL OPERATION

At the end of the 12-month demonstration period of performance testing and monitoring, two scenarios are reasonably foreseeable: (1) a successful demonstration followed immediately by commercial operation of the project at the same power level using all of the new equipment from the demonstration; and (2) an unsuccessful demonstration followed by operation of Unit 4 at the same power level using the ESP or baghouse without the CDS, lime or carbon injection, or the SCR system.

Under the first scenario, the level of short-term impacts during commercial operation would not change from those described for the demonstration in Section 4 because the proposed project would continue as a baseload power plant operating 24 hours per day with the same operating characteristics. For long-term effects, the level of impacts would be nearly identical to those discussed in Section 4, except for impacts that accumulate with time (i.e., fly ash disposal).

If not beneficially reused, fly ash from the proposed project would be transported to the Lockwood Landfill for disposal (Section 4.1.7.2). By using the calculation in Section 4.1.7.2, an estimate is derived that the landfill could accommodate Greenidge Station wastes (including all of the waste from the proposed project) through 2040. Even with less optimistic assumptions about landfill capacity, it is apparent that the landfill site could accommodate fly ash from the proposed project until well beyond its 20-year commercial lifetime.

Catalysts used in the SCR process lose their reactivity over time and would need to be replaced or regenerated after about 3 years (Section 4.1.7.3). During the 3-year intervals, which would occur during commercial operation of the proposed project, it may be possible to regenerate the spent catalyst in situ, or it could be removed and returned to the manufacturer for treatment by one of several methods (Maier and Spokovny 2000). In the unlikely event that spent catalyst were discarded, it could become a hazardous waste because the active agent in the catalyst, vanadium pentoxide (V_2O_5), is classified as an acutely hazardous waste when discarded and is restricted from land disposal under both NYSDEC and federal regulations. Any spent catalyst discarded as a waste would need to be physically stabilized with cement or a similar material prior to disposal in a licensed hazardous waste landfill (40 CFR 268).

Hazardous waste landfills are available commercially to manage this waste. In 2001, a total of 32 licensed hazardous waste landfills or surface impoundments around the United States received waste from offsite sources (EPA undated). The one commercial hazardous waste land disposal facility in the state of New York is a landfill in Niagara County that handled 132,000 tons of waste in 2001. This landfill is projected to reach its licensed capacity by 2005 (NYSDEC 2003d). The NYSDEC expects that, if this facility closes, additional hazardous waste landfill capacity would be developed somewhere in the northeastern United States. However, licensed landfills in other parts of the country are estimated to have sufficient capacity for the volume of waste currently being landfilled at the Niagara County site (NYSDEC 2003d). Residues from catalyst regeneration might need to be managed as hazardous waste, but quantities would be smaller than if the entire catalyst volume were disposed.

Impacts associated with operations under the second scenario (an unsuccessful demonstration followed by operation of Unit 4 at the same power level using the ESP or

baghouse without the CDS, lime or carbon injection, or the SCR system) would be similar to those during existing operations. Less fly ash would be captured by the ESP or baghouse than during the demonstration, due to the absence of lime and carbon injection. The amount of captured fly ash would probably be the same or slightly greater than under existing operations because the efficiency of the new ESP or baghouse would probably be slightly greater than the efficiency of the existing ESP serving Unit 4. Also, the characteristics of the fly ash under the second scenario would revert back to the characteristics of the fly ash currently generated by Greenidge Station. Air emissions would revert back to approach those under existing operations. The slightly more efficient ESP or baghouse might capture more particulate emissions. The small additional amount of water required during the demonstration would no longer be needed.